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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/382,929	08/25/1999	PAUL A. FARRAR	303.603US1	5871

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EXAMINER

GRAYBILL, DAVID E

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/382,929

Applicant(s)

FARRAR, PAUL A.

Examiner

David E. Graybill

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-10,12,14,15,18-23,31-36,38-46 and 75-94 is/are pending in the application.
- 4a) Of the above claim(s) 15,18-23,31-36,38-46 and 75-93 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8-10,12,14 and 94 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1 page.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

The information disclosure statement filed 4-24-6 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed because there is no copy of the non-patent literature publication. It has been placed in the application file, but the non-patent literature publication has not been considered.

In the rejections *infra*, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 6, 8-10, 12, 14 and 94 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Jerominek (5962909).

At column 3, line 12 to column 4, line 57, Jerominek discloses the following:

An integrated circuit assembly comprising: an electronic chip 1; and a conductive structure 15 embedded in a material layer 4, 6, 10 having a plurality of vaporization temperatures, the material layer is formed on the

electronic chip and the conductive structure includes a horizontal conductive interconnect and at least one vertical wiring via coupling the horizontal conductive interconnect to the electronic chip, wherein the horizontal conductive interconnect is formed in and above a fill material 6.

An integrated circuit assembly comprising: an electronic chip; and a conductive structure embedded in a plurality of materials 4, 6, 10, each of the plurality of materials having a different vaporization temperature, the plurality of materials is formed on the electronic chip and the conductive structure is coupled to the electronic chip; wherein each of the plurality of materials contacts a surface of the electronic chip; wherein at least one of the plurality of materials 6 is silicon dioxide; wherein at least one of the plurality of materials 4 is carbon "polyimide."

An integrated circuit assembly comprising: an electronic chip; and a conductive structure embedded in a material layer having a structural component 6 having a structural vaporization temperature and a fill material 4 having a vaporization temperature less than the structural vaporization temperature, the material layer is formed on the electronic chip and the conductive structure is coupled to the electronic chip, wherein the conductive structure includes a horizontal conductive interconnect formed in and above the fill material and at least one vertical wiring via coupling the horizontal conductive interconnect to the electronic chip; wherein the

structural component having a structural vaporization temperature is fabricated from silicon dioxide; wherein the fill material is fabricated from carbon; wherein the electronic chip inherently is a flip chip.

To further clarify, Jerominek discloses a flip chip because the term "flip" merely limits the scope of the term "chip" to the intended use of the chip and does not appear to result in a structural difference between the claimed chip and the chip of the applied prior art. Further, because the chip of Jerominek appears to have the same structure as the claimed chip, it appears to be capable of being used for the intended use, and the intended use does not patentably distinguish the claimed chip from the chip of Jerominek. The manner in which a product operates is not germane to the issue of patentability of the product; *Ex parte Wikdahl* 10 USPQ 2d 1546, 1548 (BPAI 1989); *Ex parte McCullough* 7 USPQ 2d 1889, 1891 (BPAI 1988); *In re Finsterwalder* 168 USPQ 530 (CCPA 1971); *In re Casey* 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; *In re Young*, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product

must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerominek as applied to claim 1, and further in combination with Irrinki (5784328).

Jerominek does not appear to explicitly disclose wherein the electronic chip is a memory chip; wherein the memory chip is a dynamic random access memory chip.

Nonetheless, at column 3, lines 13-16, Irrinki discloses wherein a memory chip is a dynamic random access memory chip. Moreover, it would have been obvious to combine this disclosure of Irrinki with the disclosure of Jerominek because it would provide a dynamic random access memory chip

with an on-chip temperature sensor, and thereby, as taught by Irrinki, solve prior art problems.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jerominek as applied to claim 1, and further in combination with Nakai (4663535).

Jerominek does not appear to explicitly disclose wherein the conductive structure is fabricated from copper.

Notwithstanding, as cited *supra*, Jerominek discloses that the conductive structure is fabricated from "electrically conductive material," and aluminum, gold, titanium or vanadium. Furthermore, at column 3, lines, 17-21, Nakai discloses that aluminum, gold, titanium, vanadium and copper are alternatives and equivalents; therefore, as reasoned from well established legal precedent, it would have been obvious to substitute or combine the copper of Nakai for or with the aluminum, gold, titanium or vanadium of Jerominek. See *In re May* (CCPA) 136 USPQ 208 (It is our opinion that the substitution of Wille's type seal for the cement of Hallauer in Figure 1 would be obvious to persons of ordinary skill in the art from the disclosures of these references, merely involving an obvious selection between known alternatives in the art and the application of routine technical skills.); *In re Cornish* (CCPA) 125 USPQ 413; *In re Soucy* (CCPA) 153 USPQ 816; *Sabel et al. v. The Wickes Corporation et al.* (DC SC) 175 USPQ 3; *Ex parte Seiko*

Koko Kabushiki Kaisha Co. (BdPatApp&Int) 225 USPQ 1260; and Ex parte Rachlin (BdPatApp&Int) 151 USPQ 56. See also Smith v. Hayashi, 209 USPQ 754 (Bd. of Pat. Inter. 1980) (However, there was evidence that both phthalocyanine and selenium were known photoconductors in the art of electrophotography. "This, in our view, presents strong evidence of obviousness in substituting one for the other in an electrophotographic environment as a photoconductor." 209 USPQ at 759.). An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted). See also In re Crockett, 279 F.2d 274, 126 USPQ 186 (CCPA 1960); Ex parte Quadranti, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992).

Claim 94 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jerominek as applied to claim 94 supra, and further in combination with Wu (5191404).

Jerominek not appear to disclose verbatim that the electronic substrate is a flip chip.

Notwithstanding, as cited supra, Wu discloses that an electronic substrate 24 is a "flip-chip." Moreover, it would have been obvious to combine this disclosure of Wu with the disclosure of Jerominek because it would enable external electrical connection of the chip of Jerominek.

Applicant's remarks filed 5-25-6 have been fully considered and are adequately addressed by the rejections supra.

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions relevant to the examination of the instant invention.

For information on the status of this application applicant should check PAIR:

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

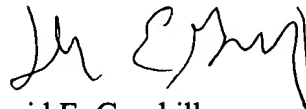
Alternatively, applicant may contact the File Information Unit at (703) 308-2733. Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.

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Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours:

Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (571) 273-8300.

A handwritten signature in black ink, appearing to read 'D. E. Graybill', is positioned above the printed name.

David E. Graybill
Primary Examiner
Art Unit 2822

D.G.

7-Jul-06